

hinc inde transversim diffractis (latit. 1—3 mm.), subtus dense fuligineo-pannosa vel spongiosis; medulla albida K—C—; apothecia rufo-fusca vel fusco-nigra, plana (latit. 1—4 mm.), receptaculo extus furfuraceo sed non rugoso et margine tenui nonnihil inflexo; sporæ numerosæ (100 et ultra), incolores, simplices, lineares sed arcuatæ vel crescenticæ, $\cdot 009$ — $\cdot 013$ x $\cdot 0025$ — $\cdot 003$ mm. Iodo gel. hym. vix tincta, thecæ cærulescentes.

Corticola, Owen Sound in Canada (Mrs. Roy).

Affinis *P. tæniatæ* (Nyl.) sed distincta.

The receptacle of the apothecia is externally yellowish, and finely tomentoso-furfuraceous, as in that of several *Peltigerae*.

ART. XI.—*Suggestions for a New and Economical Method for the Scientific Production of some Acids.*

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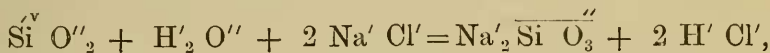
REFLECTING upon the important rôles played by Silica in the formation of numerous natural and artificial bodies, also upon its application in the manufacture of technical products of great utility in scientific and industrial pursuits, it has occurred to me that advantage might be taken of its chemistry in a way that might be useful in the production of some acids, and possibly on a large scale, where circumstances are favourable.

It will be remembered that, at varying temperatures, opposite effects may be produced with the same materials—affinities stable at a low may be reversed by a high heat, and conversely: numerous facts might be cited to verify the statement. The stability of the alkaline Silicates is readily overcome by a moderate heat, whilst in consequence of the non-volatility of Silica, even at the highest temperatures, salts of volatile acids are readily decomposed by *it*, their acidulous radicals being liberated; consequently, open for collection.

Silicates may have several formulæ. Those to which I am about to refer are the meta-silicates, whose types are

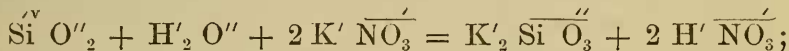
$\overset{M'}{M}_2 \overline{\text{Si O}_3''}$ and $\overset{M''}{M} \overline{\text{Si O}_3''}$; M' and M'' respectively, indicating univalent and bivalent basylous radicals, one atom of the latter, or two of the former, being saturated by the diabasic silicic radical.

To illustrate the process for the production of acids, I will take, firstly, the reactions going on during the glazing of pottery with salt. It is well known that although salt may be volatilized unchanged, a white heat failing to dissociate its elements, yet, in the presence of moisture and Silica, it is readily decomposed, thus:—

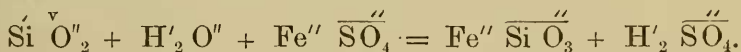


metasilicate of sodium and hydrochloric acid being the results, the latter through its volatility escaping, and hence condensable.

If then, as suggested by that formula, we substitute, say, nitrate of sodium or of potassium, we shall equally obtain nitric acid, thus:—



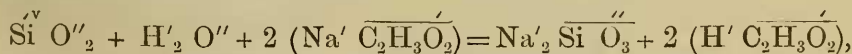
or using ferrous sulphate—at times a waste product, always a cheap article—we get sulphuric acid.



In addition to the primary object, there remains as a by-product, a meta-silicate available for use in soap-making, paint manufacture, or for rendering matters incombustible, &c., &c.

It may be said that in the cases of the nitric and sulphuric acids the formation of anhydrides would result, but as these bodies, in the presence of moisture, would re-form acids, I think that point is answered.

Suppose again that acetic acid be required, framing an equation upon the same formula we get



and so on, varying the quantities of the substance to be decomposed according as the acidulous radical is univalent, bivalent, &c.; or mono- or poly-basic in saturating power.